

Charlotte Flatebo

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Rice Univ Smalley-Curl Institute
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Research Interests: Single molecule spectroscopy, electrochemistry, polyelectrolyte chemistry

EDUCATION

Rice University, Houston, TX 2015-Present
PhD in Applied Physics

St. John's University, Queens, NY 2011-2015
B.S. in Chemistry (ACS Certified)
B.S. in Biological Sciences
Summa Cum Laude

RESEARCH EXPERIENCE

Graduate Research Assistant

Chemistry, Rice University, June 2015 – Present

- Principle investigator: Dr. Christy Landes
- Projects
 - Understand the characteristics of polyelectrolyte-modified gold nanoparticles, namely oxidation and reduction protection and catalytic behavior, using cyclic voltammetry and hyperspectral analysis
 - Analyze underlying heterogeneity of the conformational states of proteins with single-molecule spectroscopy, namely single-molecule Förster Resonance Energy Transfer (smFRET).
 - Fabricate liposomes for encapsulation of proteins and single molecule studies

NSF Research Experience for Undergraduates

Materials Science and NanoEngineering, Rice University, June 2014 – August 2014

- Principle investigator: Dr. Jun Lou
- Projects
 - Discovered different methods of synthesizing cesium tin iodide for use in solar cell manufacture.
 - Determined the degradation capabilities of a coupled titanium dioxide and activated cotton t-shirt for use in polluted river systems.

Undergraduate Research Assistant

Biological Sciences, St. John's University, January 2012 – May 2015

- Principle investigator: Dr. Dianella Howarth
- Projects
 - Performed PCR, DNA extraction, RNA extraction, gel electrophoresis.
 - Designed primers to target the three different copies of the Cycloidea gene in plant order Dipsacales.
 - Analyzed the DNA sequence of Cycloidea, a transcription factor, in the plant order Dipsacales to determine the molecular evolution of the gene and to determine the selection pressures of the different copies of the gene of interest.

AWARDS AND HONORS

NDSEG Fellow – Department of Defense graduate fellowship – September 2017

Roberston-Finley Travel Award – Travel award for international travel – May 2017

SCI Transdisciplinary Travel Award – Travel award for domestic conferences – February 2017
NSF-GRFP Honorable Mention – National Science Foundation graduate fellowship – April 2016
CRC Press Chemistry Achievement Award – St. John's Univ. Chemistry Dept. award – May 2015
Exceptional Leadership in Operations – St. John's University Operations leadership award – May 2015
ACS Undergraduate Award in Inorganic Chemistry – Division of inorganic chemistry – May 2015
Gold Key in Chemistry – St. John's Univ. Chemistry Dept. award – April 2015
Silver Key in Chemistry – St. John's Univ. Chemistry Dept. award – April 2014
Presidential Scholar – St. John's full-tuition scholarship – August 2011-2015

PUBLICATIONS

Shaikh, S.A.; Dolino, D.M.; Lee, G.; Chatterjee, S.; MacLean, D.; Flatebo, C.; Landes, C.F.; Jayaraman, V., Stargazin Modulation of AMPA Receptors. *Cell Rep.*, **2016**, *17*, 328–335.

Shuang, B.; Wang, W.; Shen, H.; Tauzin, L. J.; Flatebo, C.; Chen, J.; Moringo, N. A.; Bishop, L. D.; Kelly, K. F.; Landes, C. F., Generalized recovery algorithm for 3D super-resolution microscopy using rotating point spread functions. *Sci Rep* **2016**, *6*, 30826.

Yang, Y.; Flatebo, C.; Liang, J.; Dong, P.; Yuan, J.; Wang, T.; Zhang, J.; Chen, W.; Wu, J.; Ajayan, P. M.; Ci, L.; Li, Q.; Lou, J., Towards methyl orange degradation by direct sunlight using coupled TiO₂ nanoparticles and carbonized cotton T-shirt. *Applied Materials Today* **2016**, *3*, 57-62.

PRESENTATIONS

Flatebo, C.; Bishop, L.; Chatterjee, S.; Lin, Y.; Zheng, L.; Landes, C.; Utilizing smFRET to determine the effect of calcium on the distribution of conformational states of the trimeric calcium-proton antiporter. Proceedings of the Smalley-Curl Institute Colloquium, Houston, TX, August 12, 2016.

Flatebo, C.; Yang, Y.; Lou, J.; Discovery of Methyl Orange Degradation by Natural Sunlight Utilizing Coupled TiO₂ and Activated Cotton T-Shirts. Proceedings of the Rice Quantum Institute Colloquium, Houston, TX, August 8, 2014.

Flatebo, C.; Berger, B.; Howarth, D.; Molecular evolution of CYCLOIDEA in plant order Dipsacales. Proceedings of the Experimental Biology Conference, San Diego, CA, April 26-30, 2014; American Society for Biochemistry and Molecular Biology: Rockville, MD, 2014; 589.6, 163.

MENTORING EXPERIENCE

Undergraduate Research Assistant Mentor

Landes Research Group, Rice University, Houston, TX November 2017 – Present

- Trained undergraduate on the home-built single-particle hyperspectral microscope
- Developed a research project and expected outcomes
- Guided scientific communication development

NSF Research Experience for Teachers Mentor

Landes Research Group, Rice University, Houston, TX June 2016 – August 2016

- Expose high school teacher to the methodology behind scientific research including poster talks and framing a lesson plan around scientific research.

ProjectGRAD Mentor

ProjectGRAD, Houston, TX, December 2015 – June 2016

- Mentor first-generation college students during their first year in college.

TEACHING EXPERIENCE

Teaching Assistant – Physical Chemistry Lab

Rice University, Houston, TX, January 2017 – May 2017

- Prepared laboratory materials for the class
- Oversaw students performing experiments
- Graded laboratory reports and gave specific feedback
- Fostered inquiry based learning

Volunteer at St. Nick's After School Program

St. John's University, Queens, NY, September 2011 – April 2015

- Tutored students in math, English, religion, and science.
- Advocated love of learning and higher education.

LEADERSHIP AND OUTREACH

University

Vice President of Administration

Graduate Student Association, Rice University, Houston, TX, April 2017 – Present

- Improved Graduate Student Announcements through Python implementation
- Mentored Website and Media directors
- Involved in improving graduate student life at Rice University

Website Director

Graduate Student Association, Rice University, Houston, TX, April 2016 – April 2017

- Revamped and maintained GSA website
- Participated in outreach events including Clear the Shelters and Kitty Committee geared toward finding forever homes for animals in shelters
- Lead Orientation information sessions for incoming graduate students
- Involved in improving graduate student life at Rice University

Student Manager of Little Theatre

St. John's University, Queens, NY, August 2014 – May 2015

- Scheduled team members to staff the events and also work alongside my colleagues at the events.
- Held interviews and met with administration concerning the use of the facility.
- Trained team members on sound and lighting equipment and customer service.
- Supervised and trained upcoming managers.

Sister of Theta Phi Alpha Fraternity

St. John's University, Queens, NY, February 2013-Present

- Aid in the development of underprivileged people.
- Focused on the academic development of sisters to improve their chances in applying for graduate schools.

Resident Assistant

St. John's University, Queens, NY, August 2012 – May 2015

- Operated a 600 person building on a staff of twelve Resident Assistants.
- Created programs promoting diversity, metropolitan experience, personal development, and academic enrichment.
- Acted as a mediator between residents.

- Member of RA Mission Cohort, a group established to bridge the gap between Residence Life and the mission of the University.

Department

President

Applied Physics GSA, Rice University, Houston, TX, September 2016 – Present

- Communicate between departmental GSAs to plan events for the respective departments
- Act as a liaison between the department and the graduate students in Applied Physics
- Lead meetings to plan professional development opportunities

1st Year Representative

Applied Physics GSA, Rice University, Houston, TX, September 2015 – September 2016

- Assisted in developing an updated budget and planning departmental and interdepartmental events
- Acted as a liaison between the first year graduate students and the Applied Physics GSA

Laboratory

Safety Officer

Landes Research Group, Houston, TX, August 2015 – Present

- Responsible for lab safety training, ensuring lab compliance with university safety policies, and maintaining lab safety documentation

PROFESSIONAL AND ACADEMIC SOCIETY MEMBERSHIP

Association for Women in Science (2015)

American Chemical Society (2012; Greater Houston Chapter, 2015)

Order of Omega (2015)

Gamma Sigma Alpha (2013)

Phi Eta Sigma (2012)